

CLAIMS

1. An ink-drop generator for an inkjet printer in which an inkjet is sprayed in drops, said generator particularly comprising:

- a generator body,
- 5 - at least one acoustic wave generator with a body elongated in an axial direction to the inkjets, each generator having a vibrating surface perpendicular to the axial direction of the jets, at least one section comprising the vibrating surface of each acoustic generator being housed in a housing of the drop-generator body,
- at least one resonance cavity intended to contain ink, the first section only of each cavity possibly being constituted in a main section of said 15 body constituting the main body of the generator and, in this configuration, a second section in a continuation of said main body of the generator connected to be leaktight to the main body of the generator, each cavity having an ink feed, each cavity being defined particularly by a nozzle plate and a lateral wall secant to the nozzle plate, the intersection of the lateral wall and the nozzle plate defining a first plane contour line of the lateral wall, the nozzle plate comprising a plurality of 20 nozzles aligned along an axial direction of the nozzles perpendicular to the axial direction of the jets, the axial direction of the jets and the axial line of the nozzles defining a plane of the jets,
- 25 - a generator characterized in that the lateral wall of each resonance cavity is secant to the nozzle plate

perpendicular to said nozzle plate along the entire first contour line of said wall, the first contour line being formed by two equal segments that are parallel to one another and the axial direction of the nozzles,
5 each segment having two ends: a first and a second end, the two first ends of each segment being connected by a first curved line and the two second ends of each segment being connected by a second curved line.

10 2. Generator of claim 1 characterized in that each curved line is concave towards the inside of the cavity.

15 3. Generator of claim 2 characterized in that the first and second curved lines are constituted by semicircles the diameter of which is the space between the two equal segments.

20 4. Generator of claim 1 characterized in that the largest measurement of the first contour of the cavity lies along the axial line of the nozzles, the distance between the two segments being approximately $\frac{1}{4}$ and the height of the lateral wall being between $\frac{1}{2}$ and $3\frac{1}{4}$.

25 5. Drop generator of claim 4 characterized in that the acoustic-wave generator has a circular, transverse cross-section the diameter of which is between $\frac{1}{2}$ and $3\frac{1}{4}$.

30 6. Generator of claim 5 characterized in that one part of the acoustic-wave generator housing has at

least one circular, transverse cross-section the diameter of which is between $\cdot 2/2$ and $3\cdot 4/4$.

7. Generator of claim 3 characterized in that the
5 acoustic-wave generator housing and the cavity are connected by a hollow connector section defined by a lateral connector surface, said lateral surface having, along the axial line of the jets, a lower limit in the cavity and an upper limit close to the acoustic
10 generator housing, the upper limit of the transverse cross-section of said surface being circular with a diameter equal to that of the acoustic-wave generator housing, the intersections of this surface with the planes parallel to the nozzle plate, these planes being
15 located under the upper limit and above the lower limit, being closed curves the perimeter of which diminishes when the intersection plane moves away from the upper limit.

20 8. Generator of claim 7 characterized in that for the sections of the connector surface located in the cavity the intersections of the connector surface with the planes parallel to the nozzle plate comprise two curves symmetrical to one another relative to the jet
25 plane, the ends of each of these curves being separated from each other by the distance between the segments of the first contour.

30 9. Generator of claim 7 characterized in that the connector surface forms an opening between the acoustic-wave generator housing and the cavity, said

opening having a cross-section the length of which is more or less equal to $\sqrt{2}$.

10. Generator of claim 7 characterized in that at 5 least part of the connector surface is formed by two sections of conical surface that are symmetrical to each other relative to the jet plane.

11. Generator of claim 1 characterized in that one 10 of the ink-feed apertures is located at one end and the other at a second end of a segment of the cavity and at the top of the cavity, an ink outlet opening in the body housing.

15 12. Generator of claim 1 characterized in that the nozzles of a cavity are equidistant and that the distance between an end nozzle of an end cavity of the body and a section of the external wall of the body located at the intersection of said wall with the jet 20 plane is shorter than half the distance between two consecutive nozzles of the nozzle plate.

13. Generator of claim 11 characterized in that the distance between two end nozzles and two 25 consecutive cavities of the same body is equal to the distance between two consecutive nozzles of the same cavity.

14. Drop generator of claim 13 characterized in 30 that it is equipped with positioning means aligned parallel to the axial line of the nozzles.

15. Print head characterized in that it comprises an ink generator of claim 12 and a multijet deflector assembly, said assembly comprising charge and deflector electrodes to charge and deflect or not deflect the 5 drops from each jet.

16. Inkjet printer characterized in that it is equipped with a plurality of ink-drop generators of claim 12, the generators being aligned side-by-side 10 such that the distance between an inkjet of an end nozzle of a generator and the closest nozzle of a connected ink generator is equal to the distance between consecutive jets of the same generator.

15 17. Printer of claim 16 characterized in that it comprises a pressurized ink distributor that supplies the various generators with ink via pipes and in that the lengths of said pipes are equal between a distributor outlet and an ink inlet of each generator.

20 18. Printer of claim 17 characterized in that at least part of the pipes are rigid and that the pipes have equal numbers of elbows.

25 19. Printer of claim 18 characterized in that the value of each elbow angle of a pipe is identical on all the other pipes.

30 20. Printer of claim 18 characterized in that the elbows of the pipes form right angles.

21. Printer of claim 16 characterized in that it comprises several lines of generators aligned side-by-side, the lines being parallel to one another.